IN THE CLAIMS

1. (original): A method of measuring the partition coefficient of a compound between two immiscible solvents, said method comprising the steps of:

a) providing a composition which contains said compound and comprises nanoparticles having a porous surface and a first solvent, wherein a second solvent is absorbed into the pores of the nanoparticles and wherein said first and second solvents are immiscible;

b) separating the product of step a) into two components, the first comprising the nanoparticles and the second comprising the solvent; and

c) determining the partition coefficient from the partition of the compound between said first and second components.

2. (original): A composition comprising nanoparticles having a porous surface and a first solvent, wherein a second solvent is absorbed into the pores of the nanoparticles and wherein said first and second solvents are immiscible.

3. (original): A composition according to claim 2 wherein said nanoparticles form a colloidally stable suspension in said first solvent.

4. (original): A composition according to claim 2 or 3 wherein said porous surface is formed of any one of silica, alumina, titania, zirconia or carbon.

5. (currently amended): A composition according to ~~any one of claims 2 to 4~~ claim 2 wherein the nanoparticles further comprise a magnetic material core.

6. (original): A composition according to claim 5 wherein said magnetic material core is formed from magnetite (Fe_3O_4), maghemite (γFe_3O_4), greigite (Fe_3S_4), Fe_2CoO_4, a ferromagnetic metal or alloy or carbide.

7. (currently amended): A composition according to ~~any one of claims 2 to 6~~ claim 2 wherein said nanoparticles have a diameter of between 2nm and 1μm.

8. (currently amended): A composition according to ~~any one of claims 2 to 7~~ claim 2 wherein the porous surface layer of said nanoparticles has a thickness of between 1nm and 100nm.

9. (currently amended): A composition according to ~~any one of claims 2 to 8~~ claim 2 wherein said first solvent is aqueous, particularly is water.

10. (currently amended): A composition according to ~~any one of claims 2 to 9~~ claim 2 wherein said second solvent is one of n-octanol, cyclohexane, a C_6 - C_{10} alkane, chloroform, propylene glycol dipelargonate (PGDP), 1,2-dichloroethane, olive oil, benzene, toluene, nitrobenzene, chlorobenzene, tetrachloromethane, oleyl alcohol, 4-methylpentan-2-ol, pentan-1-ol, pentan-2-ol, isobutanol, butan-1-ol, 2-methylbutan-2-ol, butan-2-ol, butan-2-one, diethyl ether, isoamyl acetate, ethyl acetate, etc. or a monophasic mixture of two or more of these.

11. (currently amended): A composition according to ~~any one of claims 2 to 10~~ claim 2 wherein the volume ratio of said first solvent to said second solvent is between 3000:1 and 1:1 (preferably in the range 500:1 to 50:1).

12. (original): A composition according to claim 11 wherein the ratio of said first solvent to said second solvent is at least 100:1.

13. (currently amended): A method of attaining partition of a compound between two immiscible solvents comprising incorporating said compound in a composition according to ~~any one of claims 2 to 12~~ claim 2.

14. (original): A composition for use in a quantitative analytical technique, comprising nanoparticles each having a porous surface and a solvent adsorbed in the pores of the nanoparticles in a predetermined amount per unit weight of the composition.

15. (currently amended): A composition according to claim ~~13~~ 14, wherein said porous surface is formed from any one of silica, alumina, titania, zirconia or carbon.

16. (original): A composition according to claim 14 or 15 wherein the nanoparticles each have a magnetic material core.

17. (currently amended): A composition according to ~~any one of claims 14 to 16~~ claim 14, wherein said solvent is immiscible with water.

18. (original): A composition according to claim 17 wherein said second solvent is one of n-octanol, cyclohexane, a C_6 - C_{10} alkane, chloroform, propylene glycol dipelargonate (PGDP), 1,2-dichloroethane, olive oil, benzene, toluene, nitrobenzene, chlorobenzene, tetrachloromethane, oleyl alcohol, 4-methylpentan-2-ol, pentan-1-ol, pentan-2-ol, isobutanol, butan-1-ol, 2-methylbutan-2-ol, butan-2-ol, butan-2-one, diethyl ether, isoamyl acetate, ethyl acetate, etc. or a monophasic mixture of two or more of these.

19. (canceled)

20. (currently amended): A method of measuring the partition coefficient of a compound between two immiscible solvents, said method comprising the steps of:

a) incorporating said compound in a composition according to ~~any one of claims 2 to 13~~ claim 2;

b) separating the product of step a) into two components, the first comprising the nanoparticles and the second comprising the first solvent; and

c) determining the partition coefficient from the partition of the compound between said first and second components.

21. (original): A method according to claim 1 or 20 wherein step c) comprises determining the amount of said compound which remains in said first solvent.

22. (currently amended): A method according to claim 1~~, 20 or 21~~ or claim 20 wherein said compound is a bioactive drug molecule.

23. (currently amended): A method according to ~~any one of claims 1 and 20 to 22~~ claim 1 or claim 20 wherein step b) is performed by any one of filtration, centrifugation and magnetic separation.

24. (currently amended): A method according to ~~any one of claims 1 and 20 to 23~~ claim 1 or claim 20 wherein step c) comprises recording the UV-visible spectrum of said supernatant solution.

25. (currently amended): A method according to ~~any one of claims 1 and 20 to 24~~ claim 1 or claim 20 further comprising shaking the composition of step a) prior to performing the separation step b).

26. (original): A nanoparticle having a core comprising a catalytically active species, and a porous layer surrounding the core which has a pore size such that the catalytically active species is entrapped.

27. (original): A nanoparticle according to claim 26 wherein said core catalytically active species is a biologically active species, e.g. an enzyme or other protein.

28. (original): A nanoparticle according to claim 27 wherein said biologically active species is any one of blood serum albumin, β-Lactamase I (Penicillinase),kinase, a carboxylesterase, metallothionin, cytochrome b, c, P450, etc.

29. (currently amended): A nanoparticle according to ~~any one of claims 26 to 28~~ claim 26 wherein said porous layer is formed from any one of silica, alumina, titania, zirconia or carbon.

30. (currently amended): A nanoparticle according to ~~any one of claims 26 to 29~~ claim 26 wherein said core further comprises a magnetic material.

31. (original): A nanoparticle according to claim 30 wherein said magnetic core is formed from magnetite (Fe_3O_4), maghemite (γFe_3O_4), greigite (Fe_3S_4) or Fe_2CoO_4 or ferromagnetic metal or alloys (such as Fe-Pt, Fe-Co, Fe-Ni), metal carbides, etc.

32. (currently amended): A nanoparticle according to ~~any one of claims 26 to 31~~ claim 26 wherein said nanoparticles have an average a diameter of between 2nm and 1μm.

33. (currently amended): A nanoparticle according to ~~any one of claims 26 to 32~~ claim 26 wherein the core of the nanoparticle has an average diameter of between 1 and 10 nm.

34. (currently amended): A nanoparticle according to ~~any one of claims 26 to 33~~ claim 26 wherein the porous outer coating on said nanoparticle has a thickness between 1nm and 100nm.

35. (currently amended): An assembly of nanoparticles at least some of which are nanoparticles according to ~~any one of claims 26 to 34~~ claim 26, wherein on average the number of molecules of said catalytically active species per nanoparticle of the assembly is not more than one.

36. (currently amended): A method of making a nanoparticle according to ~~any one of claims 26 to 34~~ claim 26, comprising the following steps:

a) forming, in a liquid medium, colloidal particles containing the catalytically active species to be contained in the nanoparticle core, the particles being colloidally stabilised by a surfactant;

b) treating said colloidal particles by hydrolysis or pyrolysis to form the porous layer surrounding the catalytically active species.

37. (original): A method of claim 36 wherein, in step a), said colloidal particles further contain a magnetic material or a precursor to a magnetic material.

38. (original): A method of claim 36 or 37 wherein said colloidal particles comprise aqueous colloidal particles in a solvent which is immiscible with water.

39. (original): A method of claim 38 further comprising adding a salt of silicon, aluminium, titanium or zirconium to the product of step a), which forms the corresponding oxide compound upon hydrolysis at the colloid boundary.

40. (original): A method of claim 39 wherein said silicon salt is tetraethyl orthosilicate (TEOS) and the surfactant is cetyltrimethylammonium bromide (CTAB).

41. (original): A method of depositing a component in pores of a porous material, by contacting the porous material with a solution of the component in a supercritical fluid.

42. (original): A method according to claim 41 wherein the supercritical fluid is removed by depressurising it and allowing it to evaporate.

43. (original): A method according to claim 1 or 2 wherein the component is a liquid.

44. (currently amended): A method according to ~~any one of claims 41 to 43~~ claim 41 wherein the component is substantially insoluble in water.

45. (currently amended): A method according to ~~any one of claims 41 to 44~~ claim 41 wherein the porous material is porous particles.

46. (original): A method according to claim 45 wherein the porous particles are nanoparticles, having a particle size not greater than 1μm.

47. (currently amended): A method according to ~~any one of claims 41 to 46~~ claim 41 wherein the porous material has a porous silica surface.

48. (currently amended): A method according to ~~any one of claims 41 to 47~~ claim 41 wherein the supercritical fluid is carbon dioxide.

49. (currently amended): A method of preparing a composition containing two components comprising preparing porous particles containing a first component in a predetermined amount by a method according to ~~claims 45 to 48~~ claim 45, and adding said particles to a liquid second component.

50. (original): A method according to claim 49 wherein the first and second components are immiscible.